

REMARKS

The Applicants thank the Examiner for the thorough consideration given the present application. Claim 3 is cancelled herein without prejudice to or disclaimer of the subject matter contained therein. Claims 1, 2, and 4-43 are pending. Claims 1, 2, 4-7, 13, 19, and 25 are amended, and claims 31-43 are added. Claims 1, 2, and 4-7 are independent. The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein.

Examiner Interview

If, during further examination of the present application, any further discussion with the Applicants' Representative would advance the prosecution of the present application, the Examiner is encouraged to contact Carl T. Thomsen, at 1-703-208-4030 (direct line) at her convenience.

Drawings

It is gratefully appreciated that the Examiner has accepted drawings.

Claim for Priority

It is gratefully appreciated that the Examiner has acknowledged the Applicants' claim for foreign priority.

Information Disclosure Citation

The Applicants thank the Examiner for considering the reference supplied with the Information Disclosure Statements filed January 18, 2005 and August 22, 2008, and for providing the Applicants with initialed copies of the PTO/SB/08 forms filed therewith.

Restriction Requirement

It is gratefully appreciated that the Examiner has withdrawn the Restriction Requirement dated June 11, 2008.

Claim Objections

The Examiner has objected to claims 2-5 and 7 because of several informalities. In order to overcome this objection, the Applicants have amended claims 2-5 and 7 in order to correct the deficiencies pointed out by the Examiner. Reconsideration and withdrawal of this objection are respectfully requested.

Rejections Under 35 U.S.C. §103(a)

Claims 1-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Graham et al. (U.S. 6,127,120);

claims 10-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Graham et al. in view of Le Duc et al. (U.S. 3,235,473); and

claims 13-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Le Duc et al. in view of Graham et al.

These rejections are respectfully traversed.

Amendments to Independent Claim 1, 2, and 4-7

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the present application, each of independent claims 1, 2, and 4-7 has been amended herein to recite a combination of steps in a colloidal solution preparing method for forming colloidal particles by boiling a solution containing a metal salt and a reducing agent, including *inter alia*

“wherein the metal salt is a platinum salt;
platinum colloidal particles are formed; and
an average diameter of the platinum colloidal particles is 1 to 5 nm.”

Support for the features above can be found, for example, on page 10, lines 1-5 and page 10, lines 7-9 of the specification.

In addition, the manufacturing conditions including these new ranges of the reaction time in claims 1, 2 and 5 and the original manufacturing conditions in claims 4, 6 and 7 bring to the platinum colloidal particles higher catalytic activity (1.27 mol-O₂/mg-Pt/min or more), in other words, a smaller average particle diameter, compared to the colloidal particles formed in example 3 (catalytic activity of which are 1.00 mol-O₂/mg-Pt/min at most); (see Table 1).

The methods of amended independent claims 1, 2 and 4-7 realize the platinum colloidal particles that have a small average particle diameter and high catalytic activity based on the small diameter, and the methods improve the recovery rate of the platinum salt.

By contrast, Graham et al. (US 6,127,120) merely disclose the preparing method of silver colloidal particles (see col. 36, lines 15-21). However, Graham et al. are silent on platinum colloidal particles. The preparing method of silver colloidal particles is different in manufacturing conditions from that of platinum colloidal particles and therefore cannot be directly applied to the preparation of platinum colloidal particles. Even if the preparing method disclosed in Graham et al. could be applied to the preparation of platinum colloidal particles, the method would not bring the particles having small average particle diameter and high catalytic activity.

The colloidal particles disclosed in Graham et al. are used for forming a "SERS (Surface-Enhanced Raman Scattering)- active surface" in order to detect nucleic acids (see col. 11, lines 4 to 14). The SERS-active is formed through roughening a metallic surface by the colloidal particles (see col. 11, lines 8 to 10), and so it is necessary that the average particle diameter of the colloidal particles is large enough (4-50 nm, preferably 25-36 nm, see col. 11, lines 47-51) to roughen the surface. That is, Graham et al. fail to disclose or suggest the preparing method of platinum colloidal particles have a small average particle diameter and high catalytic activity.

In addition, it seems that the Examiner has made mistakes in calculating the concentration of the metal salt and that the reducing agent used in example 5 of Graham et al. (see col. 36, lines 15-21). The Applicants respectfully submit that the concentration of silver nitrate (molecular weight=170) disclosed in Graham et al. is 1.06×10^{-3} M ($=90/170 \times 1000/500$), the concentration of sodium citrate (molecular weight=261) disclosed

in Graham et al. is 3.8×10^{-2} M ($=10 \times 0.01 \times 1000 / 10 / 261$) and the equivalent concentration of sodium citrate is about 9 ($=3.8 \times 10^{-2} / 1.06 \times 10^{-3} / 4$) times the equivalent concentration of silver nitrate.

As stated above, these manufacturing conditions of silver colloidal particles cannot be applied to the preparation of platinum colloidal particles. Even assuming that these conditions could be applied to the preparation of platinum colloidal particles, the platinum colloidal particles having a small average particle diameter and high catalytic activity could not be formed. These conditions are merely included in the concentration range shown in cancelled claim 3 in which the particles having a relatively large average particle diameter and relatively low catalytic activity are formed. That is, the manufacturing method of platinum colloidal particles of the amended claims 1, 2 and 4-7 are never disclosed or suggested on Graham et al.

Le Duc (US 3,235,473) discloses the manufacturing method of fuel cell electrodes. However, Le Duc fails to disclose or suggest the preparing method of platinum colloidal particles that have a small average particle diameter and high catalytic activity.

At least for the reasons explained above, the Applicants respectfully submit that the method as set forth in each of independent claims 1, 2, and 4-7 is not disclosed or made obvious by the prior art of record, including Graham et al. and Le Duc et al.

Therefore, independent claims 1, 2, and 4-7 are in condition for allowance.

Dependent Claims

The Examiner will note that independent claims 13, 19, and 25 have been amended to depend from independent claim 7, and dependent claims 31-43 have been added to set forth additional novel features of the invention.

Support for dependent claims 31-36 can be found, for example, on page 15, lines 23-24; page 18, lines 6-9; and page 30, line 26 to page 31, line 3 of the specification and Table 1. Support for dependent claim 37 can be found, for example, on page 12, lines 24-26 of the specification.

All dependent claims are in condition for allowance due to their dependency from allowable independent claims, or due to the additional novel features set forth therein.

All pending claims are now in condition for allowance.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

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Reply dated March 11, 2009
Reply to Office Action dated November 14, 2008

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Art Unit: 1795
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CONCLUSION

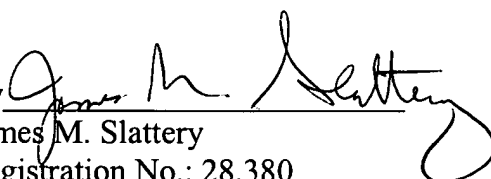
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, she is invited to telephone Carl T. Thomsen (Reg. No. 50,786) at (703) 208-4030(direct line).

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Dated: March 11, 2009

Respectfully submitted,

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